

CLAIMS

We claim:

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1. A composition comprising:
- (a) at least one polymer selected from the group consisting of polyolefin polymers, polyolefin copolymers, polyolefin terpolymers, aromatic polymers and elastomers;
 - (b) at least one polymerizable liquid selected from the group consisting of aromatic, aliphatic and cyclic hydrocarbons having one or more olefin, diene, triene, ester, nitrile, ketone, carboxylic acid, amide, amine and halide functional groups;
 - (c) initiator means for initiating polymerization; and
 - (d) optionally, one or more fillers, fibers, blowing agents, fire retardants, processing aids, impact modifiers, dyes and/or pigments.
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2. A process for preparing a coated material comprising the steps of:
- (a) combining to form a homogeneous processable fluid comprised of:
 - (i) a preformed polyalkene;
 - (ii) a polymerizable liquid compatible with the preformed polyalkene at a processing temperature; and
 - (iii) a means to generate free radicals under curing conditions;
 - (b) applying the processable fluid of step (a) to a substrate to produce a coated substrate; and
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(c) curing the coated substrate to produce a system substantially free of liquid monomer.

wherein steps (a) through (c) are carried out in a substantially inert environment.

23. The process of claim 12 wherein the processable fluid is applied to the substrate by spread coating, calendering or extrusion.

34. The process of claim 2 wherein the curing step is performed by thermal, photochemical or radiation induced free radical polymerization.

45. A process as claimed claim 2 wherein the fluid additionally comprises one or more additional materials such as fillers, fiber reinforcements, fire retardants, stabilizers, dyes, pigments, impact modifiers, processing aids, compatibilizers, blending aids, texturing aids and/or gas inclusions.

6. The process of claim 2 wherein step (a) comprises a melt mixing of from about 30 weight % to about 90 weight % of at least one metallocene polyolefin and about 70 weight % to about 10 weight % of at least one liquid monomer which is compatible with the polyolefin at 100 degrees Centigrade and about 0.2 to about 15 parts per hundred of a compound that will initiate a free radical polymerization at 140 degrees Centigrade or higher but that will not induce polymerization at an appreciable rate at 120 degrees Centigrade or lower.

67. The process of claim 11 wherein the polymerizable liquid has a boiling point and a flash point above 100 degrees Centigrade.

78. The process of claim 2 wherein step (b) comprises application by knife of the coating composition fluid to a woven synthetic fabric.

4/8. The process of claim ¹/₂ wherein step (c) comprises thermal curing carried out at about 150 to about 190 degrees Centigrade.

9/10. The process of claim ¹/₂ wherein a monomer with several polymerizable groups is included in the monomer mixture to produce a cross-linked system upon curing.

5 10/11. The process of claim ¹/₂ wherein coating step (b) is accomplished using a rod coater.

11/12. The process of claim ¹/₂ wherein the coating step (b) is repeated at least two times to build up a multi-layer coated substrate, the multi-layers beings of the same or of different composition.

10/13. 13. The process of claim 2 wherein a melt calendering process was used to coat both sides of the substrate simultaneously, the coating composition fluid being applied to two different sides of the substrate with each of the sides of the fabric being either of the same or of different composition.

14. A product as produced by the process of claim 2.

13/15. 15. The process of claim ¹/₂ wherein the substrate is a fabric.

16. The process of claim ¹/₄ wherein the substrate is a fabric.

17. The product of claim ¹/₄ wherein the composition is used to make extruded wire cables, pipes or blow-molded articles.

14/18. 18. The process of claim ¹/₂ wherein the inert atmosphere comprises an inert gas.

20 15/19. 19. The process of claim ¹⁴/₁₈ wherein the inert gas comprises nitrogen, helium or argon.